

CLAIMS

The invention claimed is:

1. A convertible roof attachment system for an automobile vehicle, the system comprising:
 - at least one retractable, cross-car elongated member;
 - each elongated member including at least one channel pair having a first channel and a second channel, the second channel being located adjacent to the first channel such that the first channel opens into the second channel;
 - a pliable sheet; and
 - a pliable sheet fastener having a retention portion and a head, the retention portion being inserted through the pliable sheet such that the retention portion penetrates the pliable sheet until the head abuts the pliable sheet adjacent a pliable sheet mating portion, the retention portion being fastenably secured within the first channel, the head being located in the second channel, and both the mating portion and the head being fully recessed within the channels.
2. The system of Claim 1, wherein the cross-car elongated member comprises a metal material.
3. The system of Claim 1, wherein the cross-car elongated member comprises one of a polymeric material and a composite material.

4. The system of Claim 1, wherein the cross-car elongated member comprises a retractable roof bow.
5. The system of Claim 1, further comprising:
 - each elongated member having a plurality of sides; and
 - at least two of the sides each include at least one of the channel pairs .
6. The system of Claim 1, wherein the first channel and the second channel are each formed as a plurality of intermittent channels each adjacently spaced to at least overlap each other.
7. The system of Claim 1, further comprising a washer disposed between the head of the pliable sheet fastener and the pliable sheet to increase an area of the pliable sheet mating portion contacting the second channel.
8. The system of Claim 1, wherein the pliable sheet is a fabric roof cover.
9. The system of Claim 1, wherein the elongated member is part of a retractable top stack mechanism supporting the pliable sheet.

10. The system of Claim 1, wherein the pliable sheet is a headliner.
11. The system of Claim 1, further comprising at least one attachment fastener spaced apart from the pliable sheet fastener, the attachment fastener being secured and recessed within the first and second channels.

12. A flexible cover attachment system for a vehicle, comprising:
 - at least one cross-car elongated member;
 - the member including at least one pair of parallel aligned, communicating inner and outer channels disposed throughout a continuous length of the member;
 - a flexible covering having an inner layer and an outer layer; and
 - at least one fastener having a body and an enlarged head, the body penetratively coupled with the inner layer until the head is in abutting engagement with the inner layer;
 - wherein the body is fastenably engaged in the inner channel until the head in abutting engagement with the inner layer is fully recessed within the outer channel such that the head is not substantially visible through the outer layer when the flexible covering is connectably attached to the member.

13. The system of Claim 12, wherein the inner layer comprises a plurality of individual sections, each individual section adjacent one of the at least one cross-car elongated member.

14. The system of Claim 13, wherein each said individual section comprises a polymeric sleeve disposed in a receiving pocket attached to the outer layer.

15. The system of Claim 12, wherein the at least one fastener comprises a plurality of one of screws and bolts.

16. The system of Claim 12, wherein the at least one fastener comprises a plurality of self tapping screws.

17. The system of Claim 12, wherein the at least one fastener comprises a plurality of rivets.

18. The system of Claim 12, wherein the inner layer further includes a plurality of preformed apertures sized to matingly engage the body of the at least one fastener.

19. The system of Claim 12, wherein the outer layer comprises a water resistant fabric.

20. A convertible roof bow system, comprising:
 - a roof bow having a longitudinal axis and at least one external face;
 - the roof bow including at least one channel disposed in the external face, the channel arranged in parallel with the longitudinal axis;
 - the channel configurable to matingly receive at least one cover retention fastener; and
 - the at least one fastener having a body and an enlarged head, the body engagingly coupled within the channel until the head is fully recessed within the channel.
21. The system of Claim 20, wherein the channel includes a length approximately equal to a roof bow length.
22. The system of Claim 20, wherein the channel comprises a plurality of channel segments each arranged in parallel with the longitudinal axis.
23. The system of Claim 22, wherein individual ones of the channel segments are each separable from an adjacent one of the channel segments by a common length gap.

24. The system of Claim 20, wherein the channel further comprises:
 - a first channel; and
 - a second channel located adjacent to the first channel such that the first channel opens into the second channel;
 - wherein the body of the at least one fastener engagingly couples within the first channel until the head is fully recessed within the second channel.

25. A method of attaching a convertible roof cover to a roof bow, the method comprising:

positioning a flexible covering over a plurality of cross-car elongated members;

mating each of a plurality of fasteners with the flexible covering;

engaging the fasteners within a corresponding channel of each of the elongated members; and

fully recessing a head of each fastener within each corresponding channel to attach the flexible covering to the elongated members.

26. The method of Claim 25, comprising aligning each of the plurality of fasteners to penetrate only an inner layer of the flexible covering.

27. The method of Claim 26, comprising separably spacing the inner layer from an outer layer of the flexible covering.

28. The method of Claim 25, comprising disposing a washer adjacent to selected heads of the fasteners to increase a bearing area between the selected heads and the flexible covering.

29. The method of Claim 25, comprising deploying the flexible covering by an extending force applied perpendicularly to the cross-car elongated members to stretch the flexible covering.

30. The method of Claim 25, comprising selecting a diameter of the fasteners to accommodate a plurality of widths of the corresponding channel.
31. The method of Claim 25, comprising selecting a length of the fasteners to accommodate a plurality of depths of the corresponding channel.